

CONTRACTS, GRANTS AND PUBLICATIONS

CHRISTOPHER THOMAS SHAW

CONTRACTS AND GRANTS

Research Awards

- C T Shaw. Using computational fluid dynamics for oven design. Technology New Zealand Technology for Industry Fellowship (TIF) with funding value NZD76,923 from TechNZ over three years. Fisher and Paykel also provide funding to the University of NZD20,220 and internal funding of NZD55,000 over three years. To run from July 2001 to June 2004 (extended to run October 2002 to September 2005).
- V F Shaw and C T Shaw. Competitiveness through effective integration of marketing and engineering. Otago Research Grant, January 2001 to June 2002, value NZD19,055.
- C T Shaw and P G Tucker. Development of use of CFD modelling and simulation tools in order to promote and market Biddle's Heating, Ventilation and Air Curtain products. Funding from Teaching Company Directorate of the Department of Trade and Industry and Biddle Air Systems Ltd., October 1999 to September 2001, value £87,112.
- W J Lewis and C T Shaw. The problem of form-finding for automotive convertible hoods and related aerostuctures problems. Funding from Jaguar Cars, October 1998 to September 2001, value £27,000.
- C T Shaw. Investigation of the motion of blow-by gases within spark ignition engines. Funding from Jaguar Cars, January 1998 to December 2001, value £49,642+VAT.
- R E Critoph and C T Shaw. Performance of vortex generator heat-exchangers. EU Joule Programme January 1998 to December 2000, value 103,500 ECU.
- C T Shaw. Support for purchase of Laser Doppler Anemometer from Jaguar Cars, January 1996, value £9,500+VAT.
- C T Shaw. Three-dimensional analysis of airflow through a filter and regulator. Funding for Research Studentship from IMI Norgren, October 1995 to September 1998, value £39,974+VAT.
- C T Shaw. Application of CFD to flows in internal combustion engines. Funding for Research Studentship from Jaguar Cars, October 1994 to September 1997, value £35,327+VAT plus software licences plus computing time on Convex mini-supercomputer.
- R E Critoph and C T Shaw. Vortex generator heat transfer enhancement in plate fin-tube heat exchangers. From SERC for period August 1993 to July 1996, value £147,914 and equipment from Copperad Ltd. value £14,000.
- C T Shaw. Hot-wire anemometry equipment for capturing velocity time series. Royal Society Research Grant for period July 1993 to June 1994, value £9,700.
- C T Shaw. Extension to contract from Jaguar Cars Ltd. for period November 1992 to February 1993, value £10,667.
- C T Shaw and G P King. Applying dynamical systems theories to boundary layer transition. From SERC for period October 1992 to September 1995, value £110,206.
- C T Shaw. Using computational fluid dynamics in the engine design process. From Jaguar Cars Ltd. for period October 1989 to September 1992, value £108,556 plus software to value £35,000 and computing time on a Convex mini-supercomputer.

Other Awards

- C T Shaw. Training in Design Process for Tecpak Industries Ltd. To value NZD800, May 2001.
- C T Shaw. Royal Society Conference Grant for visit to Third International Colloquium on Bluff Body Aerodynamics and Applications at Virginia Polytechnic Institute and State University, value £621, July 1996.

- C T Shaw. Integrated design projects for final year students of Mechanical Engineering. University of Warwick Teaching and Learning Innovation Fund, July 1993, value £1,500.
- C T Shaw. British Council Guest Lectureship to University of Stuttgart, value £500, March 1992.
- C T Shaw. Travel grant for exploratory visit to University of Stuttgart. From British Council, value £350, March 1990.

Applications Pending

None.

PUBLICATIONS

Forthcoming Publications

- V F Shaw, J D Whitehead and C T Shaw. Creating an Island Sanctuary: A Case Study of a community-led Conservation Initiative. Proceedings of Island Invasives Conference, University of Auckland, Feb 2010.

Books

- C T Shaw (2002). Why Do Computational Fluid Dynamics? NAFEMS Ltd (2002), Glasgow, 47p.
- C T Shaw (2002). How To Get Started with Computational Fluid Dynamics? NAFEMS Ltd (2002), Glasgow, 39p.
- J T Mottram and C T Shaw (1996). Using Finite Elements in Mechanical Design. McGraw-Hill, 276p.
- C T Shaw (1992). Using Computational Fluid Dynamics. Prentice Hall, 251p.

Journal Articles and Learned Society Technical Papers

- J.J. Knight, A.D. Lucey and C.T. Shaw (2010). A predictive capability for the aerodynamic deformation of convertible car roofs. Technical Note in Proc. IMechE, Part D:J Automobile Engineering, Vol. 224, 1013-1020.
- S.J. Wakes, M. Fahey and C.T. Shaw (2010). Enhancing and optimising the use of engineering tools within the design process. Design Principles and Practice: An International Journal, 4, 1, 23-32.
- J.J. Knight, A.D. Lucey and C.T. Shaw (2010). Fluid-structure interaction of a two-dimensional membrane in a flow with a pressure gradient with application to convertible car roofs. J. Wind Engineering and Industrial Aerodynamics, 98, 2, 65-72.
- M. Goellner, S. Wakes and C.T. Shaw (2009), "Industrial Designers' Processes and Tools: Projections for Developing Web-Based Design Guidelines". J. Design Research, 8, 1, 66-86.
- M Fahey, S J Wakes and C T Shaw (2008), Use of computational fluid dynamics in domestic oven design. International Journal of Multiphysics, 2(1), 37-57.
- M Fahey, S J Wakes and C T Shaw (2007), Exploration of a confined impinging heated jet using both experimental and numerical methods. International Journal of Multiphysics, 1(4), 433-455.
- C T Shaw, V F Shaw and M Enke (2004). Relationships between engineers and marketers within new product development: an Anglo-German comparison. European Journal of Marketing, 38, 5/6, 694-719.
- V F Shaw, C T Shaw and M Enke (2003). Conflict between engineers and marketers: the experience of German engineers. Industrial Marketing Management, 32, 489-499.
- V F Shaw and C T Shaw (2003). Marketing: the engineer's perspective. Journal of Marketing Management, 19, 345-378.
- V F Shaw, C T Shaw, and J Tressider (2002). Conflict between designers and marketers: a study of graphic designers in New Zealand. The Design Journal, 5 (3):10-22.
- C T Shaw, D J Lee, S H Richardson and S Pierson (2001) The flow through a plenum-runner system - a

- comparison of experiment and computation. Proc. IMechE, Pt. C. - J. Mechanical Engineering Science, 215, C8, 943-953.
- C T Shaw, D J Lee, S H Richardson and S Pierson (2001). Measuring the flow through a model engine inlet system containing a plenum and runners. Proc. IMechE, Pt. C. - J. Mechanical Engineering Science, 215, C8, 955-964.
- J Knight, A D Lucey and C T Shaw (2001). On the aerodynamic loading and deformation of convertible car roofs. SAE Technical Paper 2001-01-1269. Published as standalone paper (8 pages) and as part of Special Publication SP1600, Vehicle Aerodynamics Design and Technology, SAE.
- A C Croft, S Hibberd, D A Lawson, L R Mustoe and C T Shaw (2000). Engineering mathematics in the United Kingdom: SARTOR - a timely opportunity for reform. Engineering Science and Education Journal, 9,2, 77-87.
- C T Shaw, K P Garry and T Gress (2000). Using singular systems analysis to characterise the flow in the wake of a model passenger vehicle. Journal of Wind Engineering and Industrial Aerodynamics, 85, 1-30.
- C T Shaw, D J Lee, S H Richardson and S Pierson (2000). Modelling the effect of plenum-runner interface geometry on the flow through an inlet system. SAE Technical Paper 2000-01-0569, 2000. Published as standalone paper (12 pages) and as part of Special Publication SP1511, Modeling of SI Engines, SAE.
- R Alsemgeest, C T Shaw, S H Richardson and S Pierson (2000). Modeling the time-dependent flow through a throttle valve. SAE Technical Paper 2000-01-0659, 2000. Published as standalone paper (14 pages) and as part of Special Publication SP1512, Multi-Dimensional Engine Modeling, SAE.
- A C Croft, S Hibberd, D A Lawson, L R Mustoe (Chair), C T Shaw, J R Smith (1999). Engineering Mathematics Matters: Curriculum proposals to meet SARTOR 3 requirements for Chartered Engineers and Incorporated Engineers. The Institute of Mathematics and Its Applications (54 pages, ISBN 0 905091 09 4).
- N G Stocks, C T Shaw and G P King (1999). Energy distribution in modes in the wake of a finite-length cylinder before and after transition. J. Fluids and Structures, 13, 1, 143-152.
- A C Croft, S Hibberd, D A Lawson, L R Mustoe, C T Shaw and J R Smith (1999). Responding to SARTOR3. Mathematics Today, 35, 1, 6-9.
- C T Shaw and V F Shaw (1999). Attitudes of engineering students to mathematics - a comparison across universities. Int. J. Mathematical Education in Science and Technology, 30, 1, 47-63.
- V F Shaw and C T Shaw (1998). Conflict between engineers and marketers: the engineer's perspective. Industrial Marketing Management, 27, 279-291.
- J L Graysmith and C T Shaw (1997). Automated procedures for Boolean operations on finite element meshes. Engineering Computations, 14, 7, 702-717.
- C T Shaw and V F Shaw (1997). Attitudes of first-year engineering students to mathematics - a case study. Int.J. Mathematical Education in Science and Technology, 28, 2, 289-301.
- N G Stocks, C T Shaw and G P King (1996). Dynamical characterisation of the spatiotemporal structures in the wake of a bluff body. J.Fluids and Structures, 10, 1, 21-31.
- C T Shaw, J L Graysmith and S H Richardson (1993). Influencing engine design using computational fluid dynamics. SAE Technical Paper 930877, in 'New Engine Design and Component Technology', SP-972, pp. 127-136.
- C T Shaw and G P King (1992). Using cluster analysis to classify time series. Physica D, 58, 288-298.
- C T Shaw (1991). Adding the time dependent terms to a segregated finite element solution of the incompressible Navier-Stokes equations. Engineering Computations, 8, 4, 305-316.
- C T Shaw (1991). Using a segregated finite element scheme to solve the incompressible Navier-Stokes equations. International Journal for Numerical Methods in Fluids, 12, 81-92.
- C T Shaw (1990). Predicting the laminar flow in an eccentric cylinder system. The PHOENICS Journal of Computational Fluid Dynamics and Its Applications, 3, 1, 39-57.
- C T Shaw (1988). Predicting vehicle aerodynamics using computational fluid dynamics - a user's perspective. SAE Technical Paper 880455, in 'Research in Automotive Aerodynamics', SP-747, pp. 119-132.
- P A T Christopher and C T Shaw (1987). Generation of axi-symmetric body shapes in subsonic flow by

means of polynomial distributions of sources and doublets along the axis of symmetry. *The Aeronautical Journal*, 91, 904, 155-169.

P A T Christopher and C T Shaw (1984). The use of multi-poles for calculating the aerodynamic interference between bodies of revolution. *J Aircraft*, 21, 9, 673-679.

Published Conference Papers

J J Knight, A D Lucey and C.T. Shaw (2009), Fluid-structure interaction of the Jaguar XK8 convertible car roof. In Anderssen, R.S., R.D. Braddock and L.T.H. Newham (eds), 18th World IMACS Congress and MODSIM09 International Congress on Modelling and Simulation. Modelling and Simulation Society of Australia and New Zealand and International Association for Mathematics and Computers in Simulation, July 2009, pp. 1739-1745. ISBN: 978-0-9758400-7-8.

M. Goellner, S Wakes and C T Shaw (2008), Systematic Design Tools: A South Pacific Approach to Investigate the Use of New Design Guidelines. In Horvath, I. and Rusak, Z. (Eds), *Tools and Methods of Competitive Engineering*, Volume 1, Proceedings of TMCE 2008 Symposium, Izmir, Turkey, April 21 - 25, 2008, pp 479-494.

J J Knight, A D Lucey and C.T. Shaw (2005). Fluid-structure interaction of convertible car roofs. Proceedings of Societe des Ingenieurs de l'Automobile International Congress on Fluid Dynamics Applications in Ground Transportation, Lyon, 26-27 October 2005 (10 pages).

C T Shaw and V F Shaw (2002). The engineering-marketing interface in New Zealand. In Proceedings of Australia New Zealand Marketing Academy Conference 2002. Melbourne, Deakin University, 841-847 [ISBN 0 7300 2562 4].

V F Shaw, C T Shaw and J Tressider (2002). The relationship between designers and marketers: a study of graphic designers in New Zealand. In Proceedings of Australia New Zealand Marketing Academy Conference 2002. Melbourne, Deakin University, 811-818 [ISBN 0 7300 2562 4].

V F Shaw, C T Shaw and J Tressider (2001). Marketing: what designers really think! In Proceedings of Australia New Zealand Marketing Academy Conference 2001 "Bridging Marketing Theory and Practice". Auckland, Massey University at Albany, 8p [ISBN 0-473-08206-3].

R W Alsemgeest, C T Shaw, P W Carpenter, S H Richardson, S Pierson and C Mason (2001). The time-dependent flow through throttle valves: a computational and experimental investigation. In Proceedings of ECCOMAS CFD 2001 Conference, Eds K Morgan and N P Weatherill, University College Swansea, 23 pages [CD-ROM ISBN 0 905 091 12 4].

C T Shaw (2001). Using CFD within product design: past successes and future challenges. Invited lecture in Special Technical Session 16 "CFD in Product Design". In Proceedings of ECCOMAS CFD 2001 Conference, Eds K Morgan and N P Weatherill, University College Swansea, 11 pages [CD-ROM ISBN 0 905 091 12 4].

V F Shaw and C T Shaw (2001). The engineering-marketing interface: a case study. Proceedings of Academy of Marketing Conference, Cardiff, July.

V F Shaw, C T Shaw and J Tressider (2001). The attitude of designers to marketing. Proceedings of Academy of Marketing Conference, Cardiff, July.

V F Shaw and C T Shaw (2000). Conflict between engineers and marketers: a study of high-tech companies in Britain, Canada and Sweden. In "Visionary Marketing for the 21st Century: Facing the Challenge", A O'Cass (Ed), Proceedings of ANZMAC 2000, Griffith University, Gold Coast, Queensland, 28 November-1 December, pages 1163-1168 (ISBN 0 86857 978 5).

J Knight, C T Shaw and A D Lucey (2000). Fluid-structure modelling of convertible hoods. Proceedings of 3rd MIRA International Vehicle Aerodynamics Conference, Rugby, UK, 18-19 October, 10 pages (ISBN 095 24156-2-3).

V F Shaw, C T Shaw and P Patterson (1999). The relationship between marketing and manufacturing: A study of BHP Steel in Australia and New Zealand. In "Marketing in the Third Millenium", J Cadeaux and M Uncles (Eds), Proceedings of ANZMAC99, University of New South Wales, Sydney, 7 pages on CD-

- ROM, (ISBN 0 7334 0572 X).
- N G Stocks, C T Shaw and G P King (1999). Low frequency instability of the Karman vortex street: an experimental study of the secondary wake instability. Proceedings of the 2nd. International Symposium on "Ultrasonic Doppler Method for Fluid Mechanics and Fluid Engineering", Paul Scherrer Institute, Villingen, Switzerland, 20-23 September, 4 pages.
- V F Shaw, C T Shaw and M Enke (1999). Conflict between engineers and marketers: An Anglo-German comparison. In L Hildebrandt, D Annacker and D Klapper (Eds), Proceedings of 28th European Marketing Academy Conference (EMAC), Humboldt University, Berlin, 11-14 May, 11 pages on CDROM (ISBN 3-00-004187).
- V F Shaw, C T Shaw and M Enke (1998). The attitude of engineers to marketing: a British-German comparison. In Marketing Connections, B J Gray and K R Deans (Eds), Proceedings of Australia New Zealand Marketing Academy Conference, University of Otago, New Zealand, 30 November - 2 December, 2419-2425 (ISBN 1-877156-07-8).
- W Glanfield and C T Shaw (1998). Prediction of flow in fluid power systems. In Proceedings of 10th. International Conference on Finite Elements in Fluids, M Hafez and J C Heinrich (Eds), University of Arizona, 5-8 January, 199-204 (ISBN 1-890743-03-9).
- C T Shaw and V F Shaw (1997). A survey of the attitudes of engineering students to mathematics. In Mathematical Education of Engineers II (Proceedings of 2nd. IMA Conference), Eds. S Hibberd and L Mustoe, Institute of Mathematics and Its Applications, 35-41.
- W Glanfield and C T Shaw (1997). Application of finite element methods to predict the flow in fluid power systems. In 'Numerical Methods in Laminar and Turbulent Flow', Vol. 10, Ed. C Taylor and J T Cross, Pineridge Press, 835-846.
- D J Lee, C T Shaw and S Pierson (1997). Prediction of flow within inlet plenum systems and comparison with experiment. In 'Numerical Methods in Laminar and Turbulent Flow', Vol. 10, Ed. C Taylor and J T Cross, Pineridge Press, 915-926.
- M K Holland, M Fisher, R E Critoph and C T Shaw (1997). Prediction of the flow and heat-transfer characteristics in fin-tube heat exchangers. In 'Numerical Methods in Laminar and Turbulent Flow', Vol. 10, Ed. C Taylor and J T Cross, Pineridge Press, 1013-1023.
- D J Lee, C T Shaw and S Pierson (1997). Simulation of flow within inlet plenum systems. Paper 97A1030 in Proceedings of 5th. International Conference of Associazione Tecnica dell'Automobile, The Virtual Automobile and the Role of Experimentation, 275-284, 26-28 February, Florence, Italy.
- N G Stocks, C T Shaw and G P King (1996). 'Experimental study of the laminar-turbulent transition in an open flow system', in R.G. Harrison, W. Lu, W. Ditto, L. Pecora, M. Spano and S. Vohra (eds.), *Experimental Chaos III*, World Scientific, 177-181 (ISBN 981-02-2689-6).
- V F Shaw and C T Shaw (1996). Marketing - What engineers really think ! In '2001 - A Vision for the Next 25 Years', Proc. of Marketing Education Group (MEG) Conference, University of Strathclyde, Glasgow, 9-12 July, 10 pages in file '2cdse.doc' on CD-ROM (ISBN 0906104262).
- C T Shaw and V F Shaw (1995). Mathematics for first year engineering students - student performance and attitudes. In 'Mathematical Education of Engineers', L Mustoe and S Hibberd (Eds.), Oxford University Press, 161-174, 1995.
- S Barraclough, C T Shaw and C Arcoumanis (1994). Comparison of CFD and experimental results for the flow field through a four-valve inlet port under steady conditions. Proc. 1st. IMechE Seminar on 'The Validation of Computational Techniques in Vehicle Design - Stage 1 - Computational Fluid Dynamics', April.
- S Mallick and C T Shaw (1993). Segregated finite element algorithms on massively parallel machines. In 'Finite Elements in Fluids, New Trends and Applications' Part II, Eds. K. Morgan, E. Onate, J. Periaux, J. Peraire and O.C. Zienkiewicz, Pineridge Press, 1231-1240.
- J L Graysmith and C T Shaw (1993). Reducing model preparation times for industrial CFD problems. In 'Numerical Methods in Laminar and Turbulent Flow', Vol. 8, Part 2, Ed. C Taylor, Pineridge Press, 1370-1381.

- S Mallick and C T Shaw (1993). Computationally efficient segregated finite element algorithms. In 'Numerical Methods in Laminar and Turbulent Flow', Vol. 8, Part 2, Ed. C Taylor, Pineridge Press, 1517-1528,.
- I R Hawkins, C T Shaw and S Simcox (1992). Predicting the flow characteristics and aerodynamic forces on road vehicles using computational fluid dynamics. In 'Mathematics in the Automotive Industry', Ed. J.R. Smith, Oxford University Press, 253-267.
- I R Hawkins, A Honecker, H Krus, C T Shaw and S Simcox (1990). Numerical studies of vehicle aerodynamics. Paper 905129, In 'The Promise of New Technology in The Automotive Industry - Technical Papers', Vol. II, 75-83, Proceedings of XXIII FISITA Congress, Turin, Italy, 7-11 May.
- C T Shaw (1989). Segregated finite element solutions to the incompressible Navier-Stokes equations. In 'Numerical Methods in Laminar and Turbulent Flow', Vol. 6, Pt. 1, Ed. C Taylor, P M Gresho, R L Sani and J Hauser, 565-575, Pineridge Press.
- C T Shaw and S Simcox (1988). The numerical prediction of the flow around a simplified vehicle geometry. In 'Supercomputer Applications in Automotive Research and Engineering Development', Ed. C. Marino, Cray Research, 219-231 with figures 533-539.
- C T Shaw (1987). Evaluation of PHOENICS for predicting internal and external flows. Proceedings of 'The Second International PHOENICS User Conference', 89-102, Cham Ltd., London, 23rd-25th November.
- P A T Christopher and C T Shaw (1983). The use of polynomial source and doublet distributions in generating axi-symmetric body shapes, and their lifting characteristics in subsonic flow. In 'Missile Aerodynamics', AGARD CP 336, 6-1 - 6-20, February.

Other Conference Papers and Presentations

- M Goellner, S Wakes and C T Shaw. Development of complex products: design guidelines for product designers. At FUTUREGROUND 2004, Monash University, 17-21 November 2004, Melbourne.
- C T Shaw. Advanced Engineering at Jaguar Cars. To Otago Jaguar Drivers Club, Dunedin, 4 April 2001.
- C T Shaw. CFD - Colour Fluid Dynamics? or something more useful? To Otago Branch of IPENZ, Dunedin, 21 February 2001.
- C T Shaw, D J Lee and W Glanfield. Validating CFD models: examples in mechanical engineering. Presented at NAFEMS Seminar "The Move Towards Coupled Analyses in Industrial CFD and FEA", 6 October 1999, Kenilworth, UK.
- C T Shaw, T Gress and K P Garry. Singular systems analysis of velocity time series taken in the turbulent wake of a bluff body. In Book of Abstracts of Third EUROMECH European Fluid Mechanics Conference, Universität Göttingen, 15-18 September 1997, p 327.
- W T Glanfield and C T Shaw. Computational modelling of fluid power components using FIDAP. In Proceedings of UK FIDAP Users' Conference, 22 September 1996 at University of Warwick, pages 5-1 to 5-15.
- C T Shaw, S Haas and K P Garry. Investigation of a vehicle wake using singular systems analysis. In Abstracts of Third International Colloquium on Bluff Body Aerodynamics and Applications, 28 July - 1 August 1996 at Virginia Polytechnic Institute and State University, USA, pages C-X-1 to C-X-4.
- V F Shaw and C T Shaw. The attitudes of engineers to marketing. Marketing Education Group Annual Conference, University of Bradford, 5-7 July 1995. Abstract in Proceedings 'Making Marketing Work', Vol. II, Ed. D Jobber and M Uncles, p. 971.
- N G Stocks, G P King and C T Shaw. Characterisation and modelling of spatio-temporal structures in an open flow system. Conference on 'Measures of spatio-temporal dynamics', Bryn Mawr College, Philadelphia, 11-13 June 1995.
- N G Stocks, G P King and C T Shaw. Non-linear dynamics applied to transition in the wake of a finite-length cylinder. University of Surrey, 24 November 1994.
- N G Stocks, G P King and C T Shaw. Application of dynamical systems theories to the spatiotemporal structure in the wake of a finite aspect ratio cylinder. In Abstracts of 2nd. European Fluid Mechanics

- Conference, Warsaw University, 20-24 September 1994.
- C T Shaw and V F Shaw. Problems for admissions tutors and others arising from the varying mathematical background of engineering students. IMA Conference on 'Mathematical Education of Engineers', Loughborough University of Technology, 28-31 March 1994.
- C T Shaw. Application of CFD to real industrial problems. Presented to both School of Mechanical Engineering and College of Aeronautics, Cranfield University, February 1994.
- C T Shaw. Applying CFD to engine design. University of Stuttgart, 19 March 1992.
- C T Shaw. Searching for chaos in wind tunnels. University of Stuttgart, 17 March 1992.
- C T Shaw and S Simcox. IMechE Test Case: Contribution using Flow3D. IMechE Seminar 'CFD: Validating Codes Against Experiment', IMechE London, 11 October 1991.
- G P King and C T Shaw. Using multivariate data analysis to compare time series. IUTAM Symposium and NATO Advanced Research Workshop on 'Interpretation of Time Series from Nonlinear Mechanical Systems', University of Warwick, 26-30 August 1991.
- J H B Nijhof, G P King, R S MacKay, J M Phelps and C T Shaw. Steady Chaotic Advection in a Model of an Eccentric Taylor Vortex. Joint IMA/ERCOFTAC Conference 'New Techniques in Mathematical and Computational Modelling of Turbulent Diffusion and Mixing in Industrial and Environmental Flow Problems', University of Loughborough, 26-28 March 1991.
- C T Shaw. Using computational fluid dynamics in the automotive industry. UK Simulation Council Seminar 'Automotive Simulation', Lucas Advanced Engineering Centre, Solihull, 7th. March 1991.
- K Banas, G P King, R S MacKay and C T Shaw. Stability and chaotic advection in the eccentric Taylor problem. Symposium on 'Fluid Mechanics of Stirring and Mixing', UCSD, La Jolla, USA, 20-24 August 1990.
- C T Shaw and G P King. Stability and chaotic advection in the eccentric Taylor problem. IMA Conference on 'Dynamics of Numerics and Numerics of Dynamics', University of Bristol, 31 July 1990 - 2 August 1990.
- I R Hawkins, C T Shaw and S Simcox. Predicting the flow characteristics and aerodynamic forces on road vehicles using computational fluid dynamics. IMA Conference 'Mathematics in the Automotive Industry', University of Warwick, 21-22 September 1989.
- I R Hawkins, C T Shaw and S Simcox. Description of results using Harwell-FLOW3D for 1988 Automobile Aerodynamics Workshop. At '2nd. International Conference on Supercomputing in the Automotive Industry', Seville, Spain, 25 - 28 October 1988.
- C T Shaw and S Biggs. Producing a body-fitted co-ordinate mesh of the air volume around an automobile shape from vehicle data held on a CAD system. PHOENICS Users' Meeting, The Queen's College, Oxford, 9-10 April 1987.
- A Ecer, C T Shaw and P Ward. Variational formulation of three-dimensional incompressible viscous flows. Proc. of 'The Sixth International Symposium on Finite Element Methods in Flow Problems', Antibes, France, 16th-20th June 1986.
- C T Shaw. Computational fluid dynamics - a need for supercomputers. Press briefing at Floating Point Systems, Bracknell, December 1985.
- C T Shaw. Hydrodynamic body modelling. University College London, February 1983 (repeated November 1983).

Internal Reports

- V F Shaw and C T Shaw. Marketing: the engineer's perspective. Warwick Business School Research Paper No. 322, October 1999.
- S Hibberd and C T Shaw. Guidelines for Engineering Mathematics Under SARTOR 3: CEng Level. Report of the IMA Working Party on Mathematics Content of Engineering Degrees Accredited Under SARTOR 3, February 1999. Revised after consultation, June 1999.
- C T Shaw. A survey of commercial computer packages for solving problems using CFD. For Jaguar Cars Ltd., November 1992.

- J L Graysmith and C T Shaw. Using computational fluid dynamics within engine design. Final Contract Report for Jaguar Cars Ltd., November 1992.
- C T Shaw. Adding the time-dependent terms to a segregated finite element solution of the incompressible Navier-Stokes equations. Report ME 83, Department of Engineering, University of Warwick, March 1990.
- I R Hawkins, A Honecker, H Krus, C T Shaw and S Simcox. Numerical studies of vehicle aerodynamics. Harwell Report CSS 240, January 1990.
- C T Shaw. Application of computational fluid dynamics to calculate the flows within internal combustion engines - a feasibility study. For Jaguar Advanced Engineering Group, January 1989.
- C T Shaw. A segregated finite element solution to the incompressible Navier-Stokes equations. Report ME 69, Department of Engineering, University of Warwick, September 1988.
- C T Shaw. Solving the Navier-Stokes equations for problems of interest to the automotive industry. Jaguar Advanced Engineering Report 88002, March 1988.
- C T Shaw. An initial investigation into the use of PHOENICS to simulate steady flow into an engine port-cylinder combination. Jaguar Advanced Engineering Report 88001, March 1988.
- N Garbett and C T Shaw. Use of PHOENICS to predict the flow in a square duct. Jaguar Advanced Engineering Report 87022, February 1988.
- C T Shaw. A framework for predicting the aerodynamic lift and sideforce characteristics of a vehicle - preliminary study. Jaguar Advanced Engineering Report 87019, August 1987.
- S Biggs and C T Shaw. User guide - interfacing Computervision models of body shells to the computational fluid dynamics program PHOENICS. Jaguar Advanced Engineering Report 87017, August 1987.
- C T Shaw. An initial investigation into the use of PHOENICS to simulate the airflow over a simple vehicle shape. Jaguar Advanced Engineering Report 87014, June 1987.
- S Biggs and C T Shaw. Initial development of a meshing scheme for the CFD code PHOENICS using CAD data. Jaguar Advanced Engineering Report 87011, May 1987.
- C T Shaw. Drag estimation for Mercedes 300E and 420SE. Jaguar Advanced Engineering Report 87010, April 1987.
- C T Shaw. Initial evaluation of the MIRA empirical drag estimation program as installed within Advanced Engineering Group at Jaguar. Jaguar Advanced Engineering Report 86015, November 1986.
- C T Shaw. Assessment of the current XJ40-Facelift styling theme car using the MIRA empirical drag estimation program - October 1986. Jaguar Advanced Engineering Report 86014, October 1986.
- C T Shaw. Use of the MIRA empirical drag estimation program on XJ41. Jaguar Advanced Engineering Report 86008, September 1986.
- A Petersen and C T Shaw. Use of the MIRA empirical drag estimation program on XJ40 and XJ40 facelift. Jaguar Advanced Engineering Report 86016, July 1986.
- C T Shaw. Display of FLODYN results within SUPERTAB (V3.0) for the Ford SAS validation example (potential flow). April 1986.
- C T Shaw and P Ward. SDRC FLODYN-3D Theoretical Manual V1.0. February 1986.
- R Desai, C T Shaw and P Ward. FLODYN-3D Solver - Programmer's Manual. May 1985, revised October 1985.
- P A T Christopher, H S Deo and C T Shaw. A ring source method for predicting the aerodynamic characteristics of bodies of revolution. College of Aeronautics Memo 8409, March 1984.
- P A T Christopher, Z Hussain and C T Shaw. The subsonic aerodynamic characteristics of a body of revolution - a revised experiment. College of Aeronautics Memo 8408, March 1984.
- P A T Christopher and C T Shaw. Bodies in compressible flow - the use of axial singularity distributions. College of Aeronautics Memo 8329, November 1983.
- P A T Christopher and C T Shaw. The use of multi-poles for calculating the aerodynamic characteristics of bodies with elliptic cross-sections. College of Aeronautics Memo 8324, October 1983.
- P A T Christopher and C T Shaw. The subsonic aerodynamic characteristics of a body of revolution - comparison between theory and experiment, including the effects of model support interference. College

- of Aeronautics Memo 8315, June 1983.
- P A T Christopher and C T Shaw. The use of multi-poles for calculating the aerodynamic interference between bodies of revolution in subsonic flow. College of Aeronautics Memo 8301, February 1983.
- P A T Christopher and C T Shaw. A new technique for calculating the aerodynamic interference between bodies of revolution in subsonic flow - preliminary results and comparisons with other methods. College of Aeronautics Memo NFP1, November 1982.
- P A T Christopher and C T Shaw. The use of polynomial source and doublet distributions in generating the lifting characteristics of axi-symmetric bodies - boundary layer influence. College of Aeronautics Memo 8211, May 1982.
- P A T Christopher and C T Shaw. Generation of axi-symmetric body shapes in subsonic flow by means of polynomial distributions of sources and doublets along the axis of symmetry. College of Aeronautics Memo 8110, October 1981.

POSTGRADUATE SUPERVISION

Research Fellows and Research Assistants

- Michael Holland. August 1993 to December 1996. RA on EPSRC contract. Co-supervised with Dr R E Critoph. Topic - Vortex generator heat transfer enhancement in plate fin-tube heat exchangers.
- Dr Nigel Stocks. February 1993 to January 1996. RA on EPSRC contract. Co-supervised with Dr G P King. Topic - Applying dynamical systems theories to boundary layer transition.

Doctoral Research Students

- Mark Fahey. Registered October 2002 to September 2005. Topic - Using computational fluid dynamics for oven design. Joint supervision with Dr Sarah Wakes. Acted as adviser from 2004. Successful examination of thesis in 2007.
- Mark Goellner. Registered February 2002 to January 2005. Topic - Using guidelines in the design of complex products. Acting as adviser from 2004. Successful examination of thesis in 2005.
- Raimond Alsemgeest. Registered October 1998 to September 2001. Topic – Flow of blow-by gases in an internal combustion engine. Successful viva, corrections accepted October 2004.
- Jason Knight. Registered October 1998 to September 2001. Topic – Flow over vehicle hoods and linking to form-finding. Graduated January 2003.
- Martin Fisher. Registered October 1996 to September 1999. Co-supervised with Dr R E Critoph. Topic - Flow within fin-tube heat-exchangers. Graduated July 2000.
- Wayne Glanfield. Registered January 1996 to December 1998. Thesis title - Computational and experimental investigation of the flow characteristics of fluid power components. Graduated July 2000.
- Daniel J Lee. Registered January 1995 to December 1997. Thesis title - Computational and experimental investigation of the flow within inlet plenum systems. Successful viva May 2000.
- Swapan Mallick. Registered October 1991 to September 1995. Thesis title - Strategies for producing fast finite element solutions of the incompressible Navier-Stokes equations on massively parallel architectures. Graduated January 1997.
- Jacqueline Graysmith. Registered part-time November 1989 to April 1995. Thesis title - Using CFD in engine design. Graduated January 1996.

Masters and Other Similar Students

- John Weare – February 2002 to January 2004. MCApSc thesis – Augmented voice and the internet – application to oral history. Supervised by Dr Noel Waite from 2004.
- Monique Mazurek Finch - February 2002 to January 2004. MCApSc thesis – relationship between packaging

design and fine art. Supervised within Design Studies, Univ. of Otago from 2004.

Larry Matthews - February 2001 to January 2003. MCApSc thesis – The Design and Consumer response of Lattitude - a new Café Society product.

Reza Ali. March - September 1999. MRes thesis - Computational and experimental investigation of flow over a cube and hemisphere.

Raimond Alsemgeest. March - September 1998. MRes thesis - Computational fluid dynamics of blow-by gases.

Rijal Jamaludin. March - September 1998. MSc thesis - Flow in the wake of a cube and a hemisphere.

Thomas Gress. March - December 1996. Second supervision of Studiumarbeit at College of Aeronautics, Cranfield University. Topic - Use of singular value decomposition in analysing vehicle wakes.

Stephan Haas. March - December 1995. Second supervision of Diplomarbeit at College of Aeronautics, Cranfield University. Topic - Use of singular value decomposition in analysing vehicle wakes.

Thomas Funk. July - December 1990. Supervision of Studiumarbeit for University of Stuttgart. Topic - Flow behind a finite-length cylinder.

Krystoph Banas. January - June 1990. Supervision of Diplomarbeit for University of Twente. Topic - Flow in an eccentric cylinder system.

C W Hung. October 1989 - September 1990. MSc thesis - Automatic mesh generation.

M C (Richard) Tsang. October 1989 - September 1990. MSc thesis - Finite element mesh generation.

Paul Duineveld. April - September 1989. Supervision of Diplomarbeit for University of Twente. Topic - Flow in an eccentric cylinder system.

John Parsons. April 1989 - March 1991. Academic supervision (with Rolls Royce Filton) of IGDS (part-time) MSc thesis - Control of compressor instabilities.

Philip Morgan. April 1988 - March 1990. Academic supervision (with Rolls Royce Filton) of IGDS (part-time) MSc thesis - The design of high speed, high temperature, high radius sealing for advanced gas turbine air system applications.

K Y (Jonathan) Lau. April 1988 - March 1990. Academic supervision (with Rolls Royce Derby) of IGDS (part-time) MSc thesis - Improvements to HP compressor blade tip clearance.

REFEREEING

Book Reviews

C T Shaw. Review of "M D Gunzberger, Finite element methods for viscous incompressible flows, Academic Press (1989)", in Engineering Computations, 1990.

For Journals and Similar

American Society of Civil Engineers: Journal of Hydraulic Engineering
 American Society of Mechanical Engineers: Journal of Fluids Engineering
 Applied Mathematical Modelling
 Applied Numerical Mathematics
 Australia New Zealand Marketing Academy
 Finite Elements in Analysis and Design (The International Journal of Applied Finite Elements and Computer Aided Engineering)
 International Journal for Numerical Methods in Fluids
 Journal of Mechanical Engineering Science (Proc. IMechE Pt C)
 Journal of Wind Engineering and Industrial Aerodynamics
 Society of Automotive Engineers Technical Paper Series
 EPSRC research grant proposals

EPSRC Advanced Fellowships
Prentice Hall (book proposals)
Macmillan (book proposals)
Edward Arnold (Book proposals)
Coventry University (PhD proposals)

EXTERNAL EXAMINING

Degree Programmes

MSc in Aerospace Dynamics, College of Aeronautics, Cranfield University, October 1998 to September 2001.

Theses

PhD – University of Wales at Swansea, University of Glasgow